

WHAT IS CLAIMED IS:

1. A solid-state imaging device of an amplification type, comprising a plurality of picture elements arranged two-dimensionally each including a
5 photoelectric conversion element and a transistor for amplification,

wherein a semiconductor light-receiving region of a first conductivity type serving as each photoelectric conversion element is disposed in a common well
10 comprising a semiconductor of a second conductivity type formed in a semiconductor substrate of the first conductivity type,

15 wherein a semiconductor region of the first conductivity type serving as a source and drain of each transistor for amplification is disposed in the common well, and

20 wherein a plurality of contacts for supplying a reference voltage to the common well are disposed inside a picture element array area of the common well.

25 2. The solid-state imaging device according to claim 1, wherein the plurality of the contacts are disposed inside the picture element array area at determined intervals.

3. The solid-state imaging device according to claim 2, wherein the contact is disposed for each

picture element.

4. The solid-state imaging device according to
claim 2, wherein wirings connected to the contacts are
5 disposed in a row direction or a column direction of
the picture element array area at predetermined
intervals.

10 5. The solid-state imaging device according to
claim 2, wherein the contacts are disposed for every n
rows ($n \geq 1$) of the picture element array area and the
wirings connected to the contacts are disposed for
every m columns ($m \geq 2$) of the picture element array
area.

15 6. The solid-state imaging device according to
claim 2, wherein the wirings connected to the contacts
are disposed for every m rows ($m \geq 2$) of the picture
element array area and the contacts are disposed for
20 every n columns ($n \geq 1$) of the picture element array
area.

25 7. The solid-state imaging device according to
claim 2, wherein the plurality of the picture elements
are divided to a plurality of picture element groups,
the plurality of picture element groups are arranged in
the picture element array area at predetermined

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intervals, and the contacts are disposed between adjacent picture element groups among the plurality of the picture element groups.

5 8. The solid-state imaging device according to claim 1, wherein each of the wirings connected to the contacts is disposed between two control lines for controlling a semiconductor element in the picture element.

10 9. The solid-state imaging device according to claim 1, wherein each of the wirings connected to the contacts is disposed between a control line for controlling a semiconductor element in the picture element and the semiconductor-light receiving region.

15 10. The solid-state imaging device according to claim 1, wherein the contacts are also disposed around the picture element array area of the common well.

20 25 11. A solid-state imaging device of the amplification type, comprising a plurality of picture elements arranged two-dimensionally each including a photoelectric conversion element and a transistor for amplification,

 wherein a semiconductor light-receiving region of a first conductivity type serving as each photoelectric

conversion element is disposed in a common well of a second conductivity type in a semiconductor substrate of the first conductivity type,

wherein contacts for supplying a reference voltage
5 to the common well are disposed around a picture element array area of the common well and in each picture element,

10 wherein a semiconductor region of the first conductivity type serving as a source or drain of each transistor for amplification is disposed in the common well, and

15 wherein a contact for a power source for supplying, to the semiconductor region, a power source voltage for driving the transistor for amplification is disposed for each picture element.

12. The solid-state imaging device according to claim 11, wherein one of the contact and the contact for the power source is connected to a wiring arranged at predetermined intervals in the picture element array area and the other of the contact and the contact for the power source is connected to a shielding layer having a light-receiving window formed above the wiring.

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13. The solid-state imaging device according to claim 12, wherein the wiring is disposed between two

control lines for controlling a semiconductor element inside the picture element.

14. The solid-state imaging device according to
5 claim 11, wherein the contacts are connected to wirings
for the reference voltage arranged inside the picture
element array area at predetermined intervals and the
contact for the power source is connected to a
shielding layer having a light-receiving window formed
10 above the wiring for the reference voltage.

15. The solid-state imaging device according to
claim 14, wherein the wiring for the reference voltage
is disposed between two control lines for controlling a
15 semiconductor element in the picture element.

16. The solid-state imaging device according to
claim 13, wherein at least one of the picture elements
further includes a transfer gate, a transistor for
20 reset and a transistor for selection, and
wherein the two control lines are two selected
from the group consisting of a control line of the
transfer gate, a control line of the transistor for
reset and a control line of the transistor for
25 selection.

17. The solid-state imaging device according to

claim 11, wherein at least one of the picture elements further includes a transistor for reset,

wherein a contact for reset for supplying a reference voltage for reset to the transistor for reset
5 is disposed for each picture element provided with the transistor for reset,

wherein any two of the contact, the contact for reset and the contact for the power source are connected to intersecting wirings arranged in the
10 picture element array area, and

wherein the remaining one of the contact, the contact for reset and the contact for the power source is connected to a shielding film having a light-receiving window formed above the wiring.

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18. The solid-state imaging device according to claim 11, wherein the contact for the power source is connected to a source or a drain of the transistor for selection and supplies the power source voltage to the
20 semiconductor area through the transistor for selection.

19. The solid-state imaging device according to claim 1, wherein the plurality of picture elements include color picture elements each provided with a colored layer of a color filter and the well contacts are disposed only in the color picture elements of the
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same color among the color picture elements of plural colors.

20. The solid-state imaging device according to
5 claim 11, wherein the plurality of picture elements
include color picture elements each provided with a
colored layer of a color filter and the well contacts
are disposed only in the color picture elements of the
same color among the color picture elements of plural
10 colors.

21. The solid-state imaging device according to
claim 1, wherein the plurality of picture elements
include color picture elements each provided with a
15 colored layer of a color filter and the well contacts
are disposed only in the color picture elements of the
same color among the color picture elements of plural
colors, and

wherein a light-receiving area of the color
20 picture element in which the well contact is not
disposed is larger than a light-receiving area of the
color picture element in which the well contact is
disposed.

25 22. The solid-state imaging device according to
claim 11, wherein the plurality of picture elements
include color picture elements each provided with a

colored layer of a color filter and the well contacts are disposed only in the color picture elements of the same color among the color picture elements of plural colors, and

- 5 wherein a light-receiving area of the color picture element in which the well contact is not disposed is larger than a light-receiving area of the color picture element in which the well contact is disposed.